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MEDICAL RESEARCH AND DEVELOPMENT SERVICE

ANNUAL PROGRESS REPORT FISCAL YEAR 1976

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report serves to detail the progress, status, and funding of approved projects conducted under protocol by staff members, interns and residents at William Beaumont Army Medical Center. The varying projects as reported are classified according to the service or department to which the principal investigator belongs. Research conducted at WBAMC is categorized as either basic experimental medicine or trials and testing of clinical medicine procedures using the indigenous population for which this medical facility provides support.		

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FOREWORD

The Medical Research and Development Service is entering into its 12th year of operation. Throughout this period the personnel utilizing this service have endeavored to conduct and utilize the best research principles and techniques available for the production of the most sophisticated and reliable results. Through technological advances in the state of the art, the development of more specific and reproducible instrumentation and the greater comprehension of existing research problems, the results of the efforts of the Medical Research and Development Service have far surpassed the goals or expectations assumed possible at the inception of the program.

The investigators for each work unit are identified in their respective reporting sections. Appreciation is expressed to the many nurses, technicians, corpsmen, and administrative personnel whose contributions are vital to the successful implementation of clinical research projects.

Martin L. Nusynowitz

MARTIN L. NUSYNOWITZ, M.D.

COL, MC

Chief, Dept Medical Research & Development

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Department of Medical Research & Development

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Davis, L., Straw, J., Dixon, S., Benedetto, A.L., Sass, N.L. Biological
Half-Life of a ^{99m}Tc labeled bone imaging agent. Acc. Health
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Instantaneous Buffer Concentration from a Monotonic Flow Gradient.
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Use in the Determination of Amniotic Fluid Lecithin/Sphingomyelin Ratios.
Accepted for publication in *Biochem. Med*.

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Department of Medicine

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Straw, J.D., Benedetto, A.R., Nusynowitz, M.L. A Simplified Radiopharma-
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Medicine*.

Plymate, S.R., Nusynowitz, M.L., Reimann, B.E.F., Lindner, L.E., Prather,
J.L. Thyrotoxic Hypokalemic Periodic Paralysis Associated with Chronic
Lymphocytic Thyroiditis: A Case Study. Submitted for publication.

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Department OB-GYN

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Killam, A.P. The Ultrastructure of Human Decidua in Relation to Labor. Submitted for publication.

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Sakakini, J., Killam, A.P., Buster, J.E. Serum Unconjugated Estriol Values in Normal Pregnancy. Presented at the Armed Forces District Meeting of the American College of Obstetricians and Gynecologists, San Antonio, TX October 75.

Buster J.E., Killam, A.P., Sakakini, J. The Serum Unconjugated Estriol Nadir Surge Interval as a Marker of Gestational Age. Presented at Armed Forces District Meeting of the American College of Obstetricians and Gynecologists, San Antonio, TX. Winner of the AFD-ACOG Founder's Award for best presentation of basic obstetrical and gynecological research. Accepted for publication Amer J Ob-Gyn and accepted as thesis for subspecialty certification in Reproductive Endocrinology. Granted to Dr. John E. Buster in November 1975.

Killam, A.P. A Comparison of Two adrenocorticosteroid Regimens for the Acceleration of Fetal Lung Maturity. To be presented at the 70th Ross Conference, Durado Beach, Puerto Rico, 9 December 1975. Will be published and mailed to all pediatricians and perinatologists.

Buster, J.E., Abraham, G.E. The Application of Steroid Hormone Radio-immunoassay to Clinical Obstetrics. Obstet Gynec 46:489-499, Oct 1975.

Department of Pediatrics

Turbeville, D.F., Fearnow R.G. Comparison of Oral Gratification Habits in Ingestors and Controls. Submitted for publication.

Department of Psychiatry

Stropko, A.J. Logoanalysis and Guided Imagery as Group Treatments to Existential Vacuum. Presented at the 83rd Annual Convention of the American Psychological Assn, Chicago, Ill, Sept 3, 1975.

Department of Surgery

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Hardaway, R.M., Dixon RS, Foster EF. The Effect of Hemorrhagic Shock on Disseminated Intravascular Coagulation. Anns of Surgery 184:43, 1976.

UNIT SUMMARY

OBJECTIVES

The Medical Research and Development Service of William Beaumont Army Medical Center was established 2 February 1965. The mission, as stated in OTSG Reg 10-2, is to promote and coordinate clinical research within hospitals designated as teaching hospitals. With this mission, the Medical Research and Development Service supports in-house research projects by AMEDD staff members, residents, and interns, assisting in the formulation, preparation, and promulgation of research protocols and final research publications. The service furnishes experimental design and statistical and technical expertise, develops and carries out special laboratory procedures, and provides general support in terms of equipment, supplies, and animal resources when necessary. The creative and inspirational environment and technical knowledge available serve to stimulate the undertaking of basic and clinical medical and paramedical research at William Beaumont Army Medical Center by staff members, and interns and residents in training, as well as provide a basic instructional facility to elucidate the principles and conduct of research.

TECHNICAL APPROACH

The Medical Research and Development Service provides support for staff research projects under the guidelines of the Declaration of Helsinki, Clinical Investigation Program (AR 40-38), and the Use of Investigational Drugs in Humans and the Use of Schedule I Controlled Drug Substances (AR 40-7). Research is conducted under protocols approved by the Research Committee (WBAMC HR 70-4), the Human Use Committee (WBAMC HR 40-38) and the Radioisotope Committee (WBAMC HR 40-37) where applicable. In those research protocols utilizing laboratory animals, the investigators follow guidelines set forth in "Guide for Laboratory Animal Facilities and Care," published by the Committee on the Guide for Laboratory Animal Facilities and Care of the Institute of Laboratory Animal Resources, National Academy of Sciences-National Research Council, and to the criteria established by The American Association for Accreditation of Laboratory Animal Care.

MANPOWER

<u>Title</u>	<u>MOS</u>	<u>Auth</u>	<u>Assigned</u>	<u>Name</u>
Chief	03139	0-5	0-6	Nusynowitz, Martin L., MC
Nuc Med Sci/ Admin Off	03308	0-3	0-3	Benedetto, AR, MS
Biochemist/ Asst Chief	03309	0-3	0-3	Sass, Neil L, MS(PhD)
Vet Lab Anim Off	03205	0-3	0-3	Dixon, R.S., VC
Med Lab Sp	92B30	E-5	E-6	Rounsavill, M.A.
Vet Anim Sp	91T20	E-4	E-5	Karabin, B.L.
Vet Anim Sp	91T20	E-3	E-3	Rolland, T.M.

MANPOWER

<u>Title</u>	<u>MOS</u>	<u>Auth</u>	<u>Assigned</u>	<u>Name</u>
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Anm Caretaker	07706	WG-3	WG-1	Burton, A.D.
Chemist	01311	GS-11	GS-11	Combs, H.F.
Microbiologist	00403	GS-11	GS-11	Erke, K.H. PhD
Chemist	01320	GS-9	GS-9	Martin, J.P.
Med Lab Technl	00644	GS-11	GS-11	Banez, R.J
Med Lab Tech	00645	GS-7	GS-5	Manna, B.S.
Med Lab Tech	00645	GS-7	GS-5	Davis, L.G.
Editorial Asst	01087	GS-7	GS-7	Casteel, P.J.

FUNDING (Excluding Military Salaries)

EXPENDITURES	FY74	FY75	FY76
Personnel(Civilian,O&MA)	78867	90922	89914
Minor Equipment and Consumable Supplies(O&MA)	15475	19338	20471
Capital Equipment(OPA)	58293	59921	49739
TOTAL	152635	170181	160123

PROGRESS

The Medical Research and Development Service entered FY76 with 49 protocols carried over from FY75 in an ongoing status. Thirty-two new protocols were added for a total of 81 research protocols. As of 30 Jun76, 53 protocols remain in an ongoing status to be carried over into FY77 and FY78. Twelve protocols were completed, and 16 terminated short of completion. During this year, the Medical Research and Development Service sponsored 40 publications and 8 presentations.

The mission capability of the Medical Research and Development Svc was strongly bolstered by the reacquisition of the Animal Research Facility. This internal transfer afforded greater coordination and administrative capability in the procurement, scheduling, and maintaining of research animals both for operative procedures and experimental research. The major problem facing the Service, however, is one of a continuing nature. We have encountered inordinate delays in the advertising, recruiting, and subsequent hiring of personnel at the technician and scientist levels. There have also been severe constraints upon the replacement of qualified military personnel. In spite of this lack of personnel, during FY76 the Medical Research and Development Svc WBAMC supported more research protocols and generated more open literature publications than in any previous year.

Selected publications are mentioned as examples of the diversification of the research conducted under the aegis of the Medical Research and Development Service.

Sass and Benedetto have had "Equation for the Determination of Instantaneous Buffer Concentration from a Monotonic Flow Gradient" accepted for publication in *Analytical Biochemistry*. The purpose of this paper was to document the validity and need for a means of verifying the instantaneous buffer concentration at which a specific compound is eluted from an ion exchange liquid chromatographic separation using a gradient elution technique. This publication details the derivation of the equation for predicting concentration with respect to time and/or value, and the Fortran II program which solves the concentration equation.

Schenck published "Experimental Evaluation of Proplast in Frontal Sinus Obliteration" in *Archives of Otolaryngology*. In this publication Dr. Schenck describes the experimental procedure developed for the blockage or obliteration of the frontal sinus area using proplast. This technique has clinical value as a superior mode of treatment of patients who would normally be subject to osteoplasty with any previously available material or to osteoneogenesis.

Turbeville et al., published "Intracranial Hemorrhages in Kittens: Hyponatremia vs Hypoxia" in *J. Pediatrics* Aug 1976. The authors showed with statistical significance that intracranial hemorrhage was related to elevated serum sodium concentrations resulting from the treatment of hypoxia with sodium bicarbonate. These hemorrhages did not arise from either the hypoxemia itself and its consequent acidosis.

Sakakini et al., published "Serum Unconjugated Estriol Levels in the Third Trimester and Their Relationship to Gestational Age, II" By determining maternal serum estriol levels and rating the timing of the estriol surge, the gestational age of the fetus-neonate has been predicted ± 1 week with a high degree of accuracy.

Stropko published and presented "Logoanalysis and Guided Imagery as Group Treatments for Existential Vacuum." Logoanalysis was found to be an effective means of treating negative self-concept and existential vacuum in patients suffering from those psychological disorders. Guided imagery was found by the author to completely reduce or repress the trends and actions associated with clinical neuroticism.

COL R Sproull (USA Ret) contributed a chapter entitled "Understanding Color" in *Esthetics in Dentistry*, J.B. Lippincott Co., Philadelphia. The basis for this work was research conducted and supported by the Medical Research and Development Service while COL Sproull served as Ch, Fixed Prosthodontics, Dept Dentistry, WBAMC.

MAJ J.L. Prather, Nuclear Medicine Service, presented an exhibit entitled "Bone Scan Findings in Stress Fractures" at the Society of Nuclear Medicine Annual Meeting, 1976. This exhibit won a Silver Medal for scientific achievement in the Resident's category.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Holographic Nondestructive Testing of Metallic Dental Framework

WORK UNIT NO: 71/29

PRINCIPAL INVESTIGATOR: COL R C Sproull, DC

ASSOCIATE INVESTIGATORS: CPT N.L. Sass, PhD

OBJECTIVES

To determine if holographic tests can be employed as a means of nondestructive determination of strain in prosthetic dental materials.

TECHNICAL APPROACH

Dental frameworks are secured to a rigid base and known forces are applied to various areas of the framework. Stress lines resulting from these forces are studied and photographed using both real time and double exposure photography.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$2728	\$86	-	\$2815
FY76	\$ 337	-	-	337

PROGRESS

The ability to employ laser holographic interferometry as a means of obtaining data from irregularly shaped surfaces has not yet been perfected due to inability to provide valid mathematical models. Until this breakthrough occurs, this project will be deferred.

STATUS: Terminated due to departure of principal investigator.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Spectrophotometric Measurement of Natural Tooth Enamel and Dental Porcelain

WORK UNIT NO: 74/24

PRINCIPAL INVESTIGATOR: LTC Thomas, DDS

ASSOCIATE INVESTIGATORS: COL R Sproull(Ret)

OBJECTIVES

To measure spectrophotometrically small color samples of porcelain chips and natural tooth structure.

TECHNICAL APPROACH

Measure 1000 teeth and establish spectrophotometric standard for dental porcelain.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$ 327
FY76	337	-	-	337

PROGRESS

Due to the shortage of time and lack of scheduling ability on the part of the principal investigator, no work has been done on this project.

STATUS: Terminated.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Serum Hexachlorophene (HCP) Levels After Surgical Preparation
of the Oral Cavity

WORK UNIT NO: 75/34

PRINCIPAL INVESTIGATOR: LTC R L Wilson, DDS

ASSOCIATE INVESTIGATORS: CPT N.L. Sass, MSC

OBJECTIVES

To quantitatively measure serum HCP levels following preparation of the oral mucous membranes for 3 minutes with a 3% HCP solution.

TECHNICAL APPROACH

HCP is routinely used in oral surgery under general anesthesia to prepare the mouth preoperatively. Serum samples by venipuncture will be taken on these patients immediately prior to and at intervals of 1/2, 1, 2, 4, and 8 hours postpreparation time. These samples will be quantitatively assayed for HCP levels and would reflect rates of absorption of HCP through the oral mucosa.

MANPOWER: 0.25

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$3820	-	-	\$3820
FY76	1684	-	-	1684

PROGRESS

Baseline data on standards were obtained. The smallest amount of HCP reconstituted from whole blood detected reproducibly was found to be 500 picograms.

STATUS: Terminated due to the departure of the principal investigator.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Clinical Application of Decamethazone in Tramatic Oral Surgery

WORK UNIT NO: 76/25

PRINCIPAL INVESTIGATOR: MAJ LeMoine,

ASSOCIATE INVESTIGATORS: Maj Kempf and LTC Adams

OBJECTIVES

Evaluation of the efficacy of steroids in routine surgical removal of impacted third molars.

TECHNICAL APPROACH

Patients with bilateral lower third molars of equal symmetrical difficulty in removal will be admitted to this study. A double blind administration of either decamethasone or placebo will be given prior to the removal of the first molar. Subsequent removal of the second molar will be accompanied by administration of the second compound, depending upon which was first administered. Radiographic and photographic assessments will be correlated to the subjective pain experienced by the patient.

MANPOWER: 0.25 Man yrs

FUNDING: Civ Sal

FY76

\$1684

Equip, Supp

-

OPA

-

Total

\$1684

PROGRESS

Awaiting approval of OTSG

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Immunoassay for Antidiuretic Hormone

WORK UNIT NO: 66/115

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS: CPT N. L. Sass, PhD

OBJECTIVES

To develop a radioimmunoassay for antidiuretic hormone.

TECHNICAL APPROACH

Antidiuretic hormone will be coupled onto a larger protein molecule and efforts will be made to develop antibody to this complex in rabbits. The antibody will be reacted with known amounts of radioactive antidiuretic hormone and unknown amounts of "cold" hormone. Measurement of amount of labelled hormone reacting gives a measure of the amount of unlabelled hormone present.

MANPOWER: 0.25 Man yrs

FUNDING:	Civ Sal	Equip. Supp	OPA	Total
FY75	\$3820	\$ 847	-	\$ 4667
FY76	\$1684	\$ 350	-	\$ 2034

PROGRESS

At present, an antibody to arginine vasopressin has been obtained. Concentrations of labelled hormone and antibody for optimal assay conditions are being determined.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Gas Chromatography of Thyroid Hormones

WORK UNIT NO: 72/01

PRINCIPAL INVESTIGATOR: CPT N.L. Sass, PhD

ASSOCIATE INVESTIGATORS: B. Manna, DAC

OBJECTIVES

To develop GLC methods for MIT, DIT, T3, T4

TECHNICAL APPROACH

Silylation reaction derivatives of amino acids will be prepared to facilitate detection by gas chromatographic techniques of separate iodoamino acids from serum.

MANPOWER: 0.35 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$3820	\$1137	\$2945	\$7902
FY76	\$2357	1375	1900	22730

PROGRESS

Formation of the oxazolidine tetrafluorobutyric anhydride derivatives of MIT and DIT has permitted recovery of these compounds from serum at a level of .125 ng/ul and .625 ng/ul respectively. Phase I, development of assay, has been essentially completed. Phase II, analysis of patient serum and correlation with clinical findings is underway.

STATUS: Ongoing. Paper submitted for publication

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Further Characterization of the DNA of Cryptococcus neoformans

WORK UNIT NO: 74/11

PRINCIPAL INVESTIGATOR: Keith Erke, PhD (DAC)

ASSOCIATE INVESTIGATORS:

OBJECTIVES

Since the DNA isolated from C. neoformans precipitates in nonspoolable floccules rather than the typically spoolable DNA preparations characteristic of most other organisms, it is the object of this study to assess the purity and molecular weight of DNA prepared from this yeast. It is also of interest to determine the relative amounts of nuclear and mitochondrial DNA present in these preparations.

TECHNICAL APPROACH

The purity of DNA isolated from C. neoformans will be determined by establishing ratios of U.V. absorption at 230, 260 and 289 nm and by assaying for protein, RNA and heteropolysaccharide. Polyacrylamide gel electrophoresis and hydroxylapatite columns will be used to further purify and/or assess the purity of DNA preparations. The molecular weights of the DNA fragments will be estimated by determining sedimentation rates on sucrose gradients. Equilibrium density centrifugation will be carried out on CsCl gradients to determine the relative amounts of mitochondrial and nuclear DNA present.

MANPOWER: 0.35 Man yrs

FUDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$3820	\$ 434	-	\$4254
FY76	\$2357	1100	-	\$3457

PROGRESS

The samples of DNA that have been isolated thus far have been assessed for purity by establishing ratios of absorbance at 230, 260 and 280 nm.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Elucidation of Events Occurring During Hyphal Formation
of Some Cryptococcus neoformans strains.

WORK UNIT NO: 74/12

PRINCIPAL INVESTIGATOR: Keith Erke, PhD (DAC)

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The purpose of this investigation was to study the formation of basidia and basidiospores in three hypha-forming strains of C. neoformans. Attempts are also being made at carrying out genetic analysis in these strains of this pathogenic yeast.

TECHNICAL APPROACH

The morphological development of basidia and basidiospores were recorded with a photomicroscope. The nuclear patterns in basidiospores and hyphae were determined by Giemsa staining. Basidiospores were isolated by micromanipulation in order to observe their germination and to determine their ability to complete the sexual life cycle. Genetic analysis is conducted by mating auxotrophic mutants and looking for recombinant types among the progeny.

MANPOWER: 0.35 Man Yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$3820	-	-	\$3820
FY76	\$2357	\$1350	-	\$3707

PROGRESS

The progress to date has been summarized in a paper that has been submitted for publication. Two recent reports in the literature [1,2] have preempted this article from being the first communication on a perfect stage in C. neoformans. Nevertheless, when published it will serve as a confirmatory paper and also as a photographic documentation of the basidia and basidiospores at the light microscopic level.

Presented at the SW Regional Tri-State Meeting, American Society for Microbiology, El Paso, TX March 1976. Submitted for publication.

STATUS Ongoing.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Assessment of Mediation Factors Involved in Chemical Pain Responses

WORK UNIT NO: 75/27

PRINCIPAL INVESTIGATOR: CPT N. Sass, PhD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine the endogenous chemical mediators for the production of a chemical pain response and delineate parameters of chemoreceptor foci involved in the formation of a chemical pain response.

TECHNICAL APPROACH

Various chemical irritants will be topically applied to test animal skin to elicit the formation of blisters. The fluid contained in these blisters will be withdrawn and analyzed using various instrumental and chromatographic techniques to determine: (1) Basic patterns of fluid contents withdrawn from blisters formed as a result of using varying classes of chemical irritant compounds. (2) Determine differences in these patterns compared to those produced by capsaicin (N-(4-hydroxy-3-methoxybenzyl)non-trans-6-enamide) an irritant extracted from species of chili peppers which is known to induce resistance or immunity from further applications of chemical irritants. (3) Differential structures and/or affinities for chemoreceptor binding sites based on the structures or compositions of mediators found in the blister fluids.

MANPOWER: 0.25 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$3820	\$322	\$5407	\$9549
FY76	\$1683	PROGRESS	-	\$2084
		400		

Using lyophilization of large quantities of chili peppers has permitted the isolation of relatively large quantities of several capsaicin esters in mixed form. These esters will now be subjected to further fractionation procedures to achieve their complete purification.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Isolation and Purification of Choline Phosphotransferase

WORK UNIT NO: 75/30

PRINCIPAL INVESTIGATOR: CPT N. Sass, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To develop a method for the isolation of choline phosphotransferase from lung tissue and correlate respiratory distress with the presence and specific activity of this enzyme.

TECHNICAL APPROACH

Basic standardized techniques will be carried out to isolate the microsomal and lysosomal fractions of lung tissue. These fractions will then be subjected to high pressure extrusion and various chromatographic and electrophoretic techniques necessary to obtain the enzyme in a purified state. The effects of steroids and various ions and possible cofactors upon the isolated enzyme will be assessed to determine possible means of prophylaxis in cases of respiratory distress.

MANPOWER: 0.25 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$3820	\$1162	\$4055	\$9036
FY76	1684	1650	2500	5830

PROGRESS

Isolation of this enzyme from lung homogenates has resulted in single protein element peaks containing the majority of the enzyme activity (800 fold purification) Upon acrylamide electrophoresis, however, this peak was found to contain at least 9 separate protein fractions. For future work, isolation attempts will be made on the lamellar body fractions isolated by amniotic fluid ultracentrifugation since this has been shown both physiologically and biochemically to be the site of phospholipid and surfactant synthesis.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Mode of Action of the 4-quinazolones(I) : CNS Active Drugs

WORK UNIT NO: 76/16

PRINCIPAL INVESTIGATOR: Joel Martin (DAC)

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To study the pharmacology, pharmacokinetics, and effect on various enzymes of the 4-Quinazolones in various organs of the body in an attempt to determine the exact mode of action of this family of CNS depressants.

TECHNICAL APPROACH

Laboratory animals are injected with Methaqualone (2-methyl-3-o-tolyl-4(3H)-Quinazalone). At various time intervals (1,3,6, and 24 hours) the animals are sacrificed and the various organs collected. The amount of Methaqualone in the various organs are determined by either Gas Chromatography, Thin Layer Chromatography, UV Spectrophotometry, or Colorimetric techniques. Enzyme levels are determined by biochemical assays.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$2357	\$ 150	-	\$2500

PROGRESS

Six laboratory animals have been injected with Methaqualone. They were sacrificed at the time intervals stated above. The various organs are being used to establish an analytical procedure for the determination of Methaqualone in tissue samples. A qualitative procedure has been established and attempts are being made to determine a quantitative procedure.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Study of immune response to experimental infection with
Brucella melitensis

WORK UNIT NO: 76/21

PRINCIPAL INVESTIGATOR: SP5 Raymond

ASSOCIATE INVESTIGATORS: MAJ E. Young, MC; CPT N Sass, MSC; K. Erke PhD

OBJECTIVES

The object of this study is to evaluate the possible correlation between development of delayed-type hypersensitivity (DTH) and development of cell-mediated immunity (CMI) to bacterial endotoxins as shown in migration inhibition factor (MIF) and lymphocyte transformation studies.

TECHNICAL APPROACH

This will be accomplished by experimental infection of guinea pigs with a specific endotoxin antigen derived from the cell walls of Brucella melitensis by fractionation methods. Upon subsequent infection, the experimental animals will be tested for production of MIF by standard methods as well as lymphocyte transformation studies using a RIA technique.

MANPOWER: 0.35 Man Yrs

FUNDING: Civ Sal
FY76 \$2357

Equip, Supp
\$ 100

OPA
-

Total
\$2457

PROGRESS

The Brucella organism is growing in TSA and will be harvested as batches are ready. Over the course of this growth phase, purification of the endotoxin to be used in the studies will be accomplished.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Regional Myocardial Blood Flow

WORK UNIT NO: 69/338

PRINCIPAL INVESTIGATOR: COL M.L. Nusynowitz, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To devise a method for determination of regional changes in the blood supply to the myocardium.

TECHNICAL APPROACH

Selective catheterization of coronary arteries will be performed on anesthetized, well ventilated, mongrel dogs using preformed coronary catheters. After confirmation of the position of the catheter, ¹³³Xenon will be rapidly injected into the coronary artery. The animal's heart will be centered beneath a ten inch scintillation camera collimator. The image produced by this camera will be photographed at appropriate intervals to produce both visualization of the coronary arterial tree and washout of the xenon.

MANPOWER: 0.10 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 327	\$ 442	\$28,895	\$29.664
FY76	\$ 673	-	-	673

PROGRESS

Data has been obtained and methods of analysis are being worked out. Once accomplished, extensive data will be collected for determination of accuracy and precision of this method to ascertain abnormalities in regional myocardial blood flow.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Antibody Detection in Hepatitis Type B

WORK UNIT NO: 73/24

PRINCIPAL INVESTIGATOR: MAJ J: Prather, MC

ASSOCIATE INVESTIGATORS: MAJ Alan Hughes, MC

OBJECTIVES

To provide a simple radioimmunoassay kit for the assessment of antibody titers in patients with exposure to Hepatitis Type B.

TECHNICAL APPROACH

Available kit for determination of the presence of Hepatitis Type B antigen was converted to a kit for assay of the antibody. Studies were undertaken with this method; however, a commercial antibody kit was marketed and studies were then performed with this kit.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 327	-	-	\$327
FY76	337	-	-	\$337

PROGRESS

We are continuing to accumulate and evaluate data. We are presently using the commercial Hepatitis B Antibody kit and are studying patients with hepatitis, blood donors, and patients undergoing renal dialysis to ascertain the prevalence of antihepatitis Type B antibodies.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Gallium-67 Citrate in the Diagnosis of Soft Tissue Tumors

WORK UNIT NO: 74/18

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To evaluate ⁶⁷Gallium Citrate for use in the diagnosis of soft tissue tumors and inflammatory disease.

TECHNICAL APPROACH

Patients with documented neoplasm or those highly suspect of having soft tissue neoplasm or occult abscesses are given intravenous injections of Gallium citrate and subsequently scanned.

MANPOWER: 0.05 Man Yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

To date, approximately 50 patients have been studied with no adverse reactions encountered. Scans have been of diagnostic quality. Gallium-67 citrate will continue to undergo investigation, since abnormalities undetected by other means have been uncovered by this technique.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Comparison of Clindamycin & Penicillin in the Treatment of
Bacterial Lung Abscesses

WORK UNIT NO: 74/33

PRINCIPAL INVESTIGATOR: MAJ E.J. Young, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To compare the efficacy of clindamycin vs high doses of penicillin in the treatment of bacterial lung abscesses in man. Included are such parameters as organism(s) recovered, length of time on parenteral and oral antibiotics, complication rates and total cost of the two modes of therapy.

TECHNICAL APPROACH

All patients admitted to the Medical or Surgical Services of WBAMC with diagnosis of bacterial lung abscess are eligible for inclusion in this study. Patients assigned on alternating basis to each group (i.e., Clindamycin or Penicillin) with reasons for changing based only on (1) hypersensitivity to the drug, and (2) isolation of organism resistant to the drug.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$ 337	-	-	\$337

PROGRESS

The series is not large enough at the present time to make a statistically valid comparison of the treatment regimens.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Mechanisms of Brucella Endotoxin Effects in Experimental Animals

WORK UNIT NO: 74/34

PRINCIPAL INVESTIGATOR: MAJ E. J. Young, MD

ASSOCIATE INVESTIGATORS: Keith Erke, PhD (DAC)

OBJECTIVES

To determine, using an experimental animal model, the role of Brucella endotoxin in the pathogenesis of brucellosis.

TECHNICAL APPROACH

The isolation of endotoxin from B. melitensis will be conducted. Studies on lethality of this substance in mice, and studies of its pyrogenicity in rabbits, using an established animal model, will be done as well as studies on the role of sensitization to this antigen in the above reactions and the role, if any, of humoral and cellular antibodies.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 382	\$ 785	-	\$4605
FY76	\$1683	\$ 100	-	\$1780

PROGRESS

Since the report of 1975 this project has been hampered by the lack of full-time technical help. Recent studies indicate that the fractionation method used to isolate endotoxin from B. melitensis is critical to the type of fever curve obtained. Endotoxin prepared by the hot-phenol water method (modified Westphal technique) used originally in this study produces a weak endotoxin preparation which produces only a single fever peak when injected into normal rabbits. A hyperactive state can be induced by the use of the endotoxin in complete Freund's adjuvant which restores the ability of the rabbit to respond with a classical endotoxin response (i.e., double fever peak). Endotoxin prepared by the Boivin technique (trichloroacetic acid-ether) produces a double fever peak in normal rabbits (i.e., does not require prior hypersensitivity).

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Steroid Metabolism in Oligospermia

WORK UNIT NO: 74/52

PRINCIPAL INVESTIGATOR: MAJ S. R. Plymate, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine whether or not there is a deficiency in testosterone production in oligospermia demonstrable by a reduced ratio in testosterone to 17-OH-progesterone following HCG stimulation.

TECHNICAL APPROACH

Human chorionic gonadotropin has been given to ten oligospermic males with 17-hydroxyprogesterone and testosterone measurements made on their plasma following administration of HCG. Five normal control patients are also to be done.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$ 337	-	-	\$337

PROGRESS

Terminated due to departure of principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Chemotherapy of Cancer

WORK UNIT NO: 74/50

PRINCIPAL INVESTIGATOR: MAJ R. T. Weisberg, MD

ASSOCIATE INVESTIGATORS: MAJ R.S. Weinger, MD

OBJECTIVES

The affiliation of WBAMC Oncology and Hematology Svc with the other groups in the Western Cancer Group in conducting trials of chemotherapy in cancer will obtain the necessary understanding of the cancer process; determine the effective therapeutic approaches; and provide needed information to use in the care of patients with malignant diseases. The common objective of all investigators in the group is the conquest of human cancer, not by TECHNICAL APPROACH competition, but by unanimity.

Each protocol used by the Western Cancer Group goes through a rigorous process of review, revision, and evaluation prior to becoming activated for group usage. The flow of protocols from author through specific disease committee, statistician, committee headquarters, studies management board, cancer investigational branch of the National Cancer Inst and filing with the Cancer Investigational Branch of the National Cancer Institute is outlined on the WCSG new protocol flow wire diagram. Data collected by member institutions is reviewed and analyzed by the Study Analysis Center of the Western Cancer Group. There is also a full time group statistician whose function is to review study design and aid in analyzing data collected.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 327	-	-	\$327
FY76	\$ 337	-	-	\$337

PROGRESS

This research is a part of the total Western Cancer Study Group Program, and, as such, cannot be evaluated on its own merit. The data is forwarded to the WCG for tabulation and analysis and, when such is computed, a final report will be submitted. At the close of this FY 77 patients have been admitted to study on various WCSG protocols.

Terminated due to the departure of the principal investigators
STATUS and the dissolution of the Western Cancer Study Group

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Normal Values of Serum Triiodothyronine (T3) as Determined by
TITLE: Radioimmunoassay in Various Clinical Euthyroid States

WORK UNIT NO: 75/07

PRINCIPAL INVESTIGATOR: COL M. Nusynowitz, MD; Jerome Waliszewski DAC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

Determine normal values of T3 for: (a) Pregnancy during all three trimesters. (b) Females taking oral contraceptives. (c) Euthyroid Hashimoto's Disease. (d) Other thyroiditides.

TECHNICAL APPROACH

Serum samples will be obtained from patients during 1st, 2nd, and 3d trimester of pregnancy; females on oral contraceptives for at least 3 months; euthyroid patients with Hashimoto's thyroiditis before treatment with thyroid hormone and after treatment with Synthroid; patients with thyroiditis (subacute). Clinical histories will be obtained and the clinical thyroid state will be determined. The serum samples obtained will be evaluated by radiobioassay. Determination of the inclusion into the proposed categories will be from clinical diagnosis, clinically determined thyroid state and appropriate laboratory studies.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$ 337	-	-	\$337

PROGRESS

T3 levels in normal pregnancy in various stages were ascertained and found to be elevated due to elevated TBG. Determination of free T3 index by multiplying T3 by T3U shows normal values throughout pregnancy. A paper has been presented and published in abstract form and has been submitted for publication. Similar studies have been performed in patients with chronic renal failure on dialysis. Data has been collected and is being analyzed for preparation of the final paper.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Incidence of Splenomegaly in Patients with Primary Carcinoma
of the Colon

WORK UNIT NO: 75/10

PRINCIPAL INVESTIGATOR: MAJ B. Mazat, MD

ASSOCIATE INVESTIGATORS: COL M.L. Nusynowitz, MD

OBJECTIVES

To determine the incidence of isolated splenomegaly as noted on radio-colloid scanning of the liver and spleen in patients with carcinoma of the colon.

TECHNICAL APPROACH

A retrospective review of the scans and medical histories of all patients with carcinoma of the colon registered with the Tumor Board, WBAMC, from 1968-1974 is intended. Splenic size will be determined from the radio-colloid scan by the method of Larson. Coincident liver abnormalities will be noted; patients with evidence of significant liver pathology will be excluded. Data obtained will be analyzed to determine the incidence of splenomegaly in patients with carcinoma of the colon.

MANPOWER: 0.05 Man yrs'

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>To'al</u>
FY75	\$327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

Data is in the process of being collected and analyzed.

STATUS Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: ^{125}I Bone Densitometry in the Hyperthyroid State

WORK UNIT NO: 75/11

PRINCIPAL INVESTIGATOR: MAJ B. Mazat, MD

ASSOCIATE INVESTIGATORS: COL M L Nusynowitz, MD; J Waliszewski, DAC

OBJECTIVES

To determine the amount of calcium lost from bone matrix in the hyperthyroid state by ^{125}I photon absorption. Determine amount and rate of skeletal repair (increase in calcium content of bone) following treatment of hyperthyroidism.

TECHNICAL APPROACH

In vivo quantitation of bone mineral content by ^{125}I photon absorption will be performed in patients with hyperthyroidism. The radius, ulna, and/or os calcis will be used. Images will be recorded of the photons transmitted through the bones and surround soft tissue and be compared to absorption in a water phantom. An absorption index will be determined from the ratios of the photon and patient results. Laboratory studies of bone metabolism will be correlated with the photon absorption data. Studies will be performed during the course of treatment with hyperthyroidism to ascertain both degree of bone involvement in untreated patients as it correlates with the severity of hyperthyroidism to determine the rate of healing.

MANPOWER: 0.05 Man yrs

FUDING: Civ Sal
FY76 \$337

Equip, Supp
-

OPA
-

Total
\$337

PROGRESS

Terminated due to investigator's departure.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Vascular Complications of Percutaneous Femoral Arterial Catheterization Using Systemic Heparinization-Prospective Evaluation
TITLE: with the Doppler Ultrasonic Velocity Detector

WORK UNIT NO: 75/13

PRINCIPAL INVESTIGATOR: MAJ W.C. Foote, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To assess the incidence of vascular complications of a large number (100) of patients undergoing percutaneous femoral arterial catheterization using systemic heparinization as evaluated by the Doppler Ultrasonic Velocity Detector

TECHNICAL APPROACH

Pre- and post-catheterization doppler evaluation of radial and posterior tibial pressures are being obtained in a series of patients undergoing percutaneous left heart catheterization after the administration of 5,000 units of heparin, intravenously. The incidence of vascular complications including CUA, MI, femoral or distal arterial emboli or thrombi, bleeding and dissection is being assessed. The data will be compared to a previous study wherein systemic anticoagulation was not employed.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

More than 70 patients have been studied to date with a 0.0% complication rate. Study has been completed and paper is being written.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Search for Bone Marrow Granulomas in Infectious Mononucleosis

WORK UNIT NO: 75/20

PRINCIPAL INVESTIGATOR: MAJ E. J. Young, MD

ASSOCIATE INVESTIGATORS: MAJ T. Brown, MC
Ms Lois Nance, DAC

OBJECTIVES

Previous reports have documented noncaseating granulomas in the bone marrows of patients suffering with infectious mononucleosis (IM). All such reports date from the period prior to serologic tests capable of testing for the presence of Epstein-Barr Virus (EBV) material.

TECHNICAL APPROACH

The object of the study is to sample bone marrow from patients with IM and to document the presence of noncaseating granulomas. If granulomas are found, to stain the section with fluorescent-stained EBV antibodies to determine if the granulomas are reactions to the infecting agent.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$1091	\$ 219	-	\$1307
FY76	\$ 337	-	-	\$3337

PROGRESS

This project has not begun because of an inability to obtain Epstein-Barr antibody of suitable immunologic activity. The proposal therefore has been deferred.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Diagnostic Adrenal Scanning with ^{131}I -Iodocholesterol

WORK UNIT NO: 75/23

PRINCIPAL INVESTIGATOR: MAJ J Prather, MC

ASSOCIATE INVESTIGATORS: MAJ F Gluck MC; COL M Nusynowitz MC;
MAJ A. Hughes, MC

OBJECTIVES

To determine the usefulness of ^{131}I -Iodocholesterol in scanning of the adrenal glands.

TECHNICAL APPROACH

Patients with clinical evidence of adrenal disease will be thoroughly evaluated by an endocrinologist. Following intravenous administration of ^{131}I -Iodocholesterol, adrenal scanning will be performed after 7-10 days. The material will be obtained from the Nuclear Pharmacy, University of Michigan. The WBAMC Radiopharmacist will perform sterility and pyrogenicity tests on the radiochemical to insure that radiopharmaceutical standards are met prior to injection. DD Form 1573 will be filed with the supplier prior to the use of the material in patients.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$ 337	-	-	\$337

PROGRESS

Two studies were performed with the original ^{131}I -Iodocholesterol product. However, the University of Michigan changed radiopharmaceuticals and are now using a material known as NP-59. We have applied for permission to use this agent and are awaiting official approval. Studies with ^{131}I cholesterol were deemed safe and useful clinically.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: ^{99m}Tc -Sn-DTPA Chelate in the Detection of Vesicoureteral Reflux

WORK UNIT NO: 75/24

PRINCIPAL INVESTIGATOR: MAJ J Prather, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine the usefulness of ^{99m}Tc -Sn-DTPA chelate as a renal imaging agent, and particularly in the demonstration of vesicoureteral reflux.

TECHNICAL APPROACH

Patients with known or suspected vesicoureteral reflux will be studied with ^{99m}Tc -Sn-DTPA. The results obtained will be compared with clinical findings, laboratory tests, and roentgenographic studies. Commercially available radiopharmaceutical Sn-DTPA preparation kits will be employed. The kits will be supplied by Diagnostic Isotopes, Inc., 123 Pleasant Ave, Upper Saddle River, NJ. These kits are supplied in sterilized and pyrogen-free form. Other suppliers will be sought only if their product appears to be far superior and only from those manufacturers who have filed an IND with the Food & Drug Administration. Several mCi of radiopertechnetate are added to the Sn-DTPA kit and the manufacturers directions are explicitly followed for radiopharmaceutical preparation.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$ 337	-	-	\$337

PROGRESS

We have recently received permission to study children below the age of 13 with this technique and this will allow us to proceed more vigorously with the study.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Parathyroid Gland Function in Hyperthyroidism

WORK UNIT NO: 75/32

PRINCIPAL INVESTIGATOR: MAJ F. B. Gluck, MC

ASSOCIATE INVESTIGATORS: COL M.L. Nusynowitz, M.D.

OBJECTIVES

The purpose of the study is to determine parathyroid gland activity in hyperthyroid patients.

TECHNICAL APPROACH

After appropriate studies confirming hyperthyroidism, patients will undergo a 4-hour TRP and will have serum PTH and Ca levels determined. A 24-hour urine will also be collected for Ca and P determinations. A dietary history will be taken at this time to assess the state of calcium intake. Patients will be placed on Inderal, since the adrenergic system has been implicated in parathyroid secretion and the above tests will be repeated. They will be repeated once more when patients have achieved an euthyroid state. If the PTH is normal or elevated in the face of increased bone turnover, as estimated by alkaline phosphatase, 24-hour urine Ca, and urinary hydroxyproline, and if these are reversible by β -adrenergic blockade, the hypothesis will be accepted.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$327	-	-	\$ 327
FY76	\$337	-	-	\$ 337

PROGRESS

Initial results inconclusive .

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Survival of N gonorrhea in Modified Stuart's Bacterial
Transport Media

WORK UNIT NO: 76/01

PRINCIPAL INVESTIGATOR: MAJ Larry Becker, MC

ASSOCIATE INVESTIGATORS: LTC Jimmie Diaz, MC
LTC Cary Barnes, MC

OBJECTIVES

To compare recovery rates of Neisseria gonorrhea on Thayer-Martin media vs recovery rates from Culturette tubes (modified Stuart's media) held varying periods of time before plating.

TECHNICAL APPROACH

Male patients with gonorrhea, (diagnosed by positive Gram's stain), were used for patient material. Urethral discharge from the patient was used to inoculate a Thayer-Martin plate in the VD Clinic. The plate was then placed in a candle jar and transferred to the laboratory. Four Culturette swabs were also obtained from each patient. The Culturette tubes were randomly plated on TM media 2, 4, 6, and 24 hours later. Forty-two specimens were also collected on transgrow media and twenty-five specimens were also collected on Transgrow plus Trimethoprim.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY76	\$337	-	-	\$ 337

PROGRESS

Eighty-six specimen sets were processed, Eighty-four (97.7%) cultures grew N. gonorrhea from the Thayer-Martin plate inoculated in the clinic. Eighty-three of 86 (96.5%) of Culturette tubes held two hours before plating on TM media grew N. gonorrhea. Seventy-nine of 86 (91.9%) of Culturette tubes held four hours before plating on TM media grew N. gonorrhea. Seventy-nine of 86 (91.9%) of Culturette tubes held four hours before plating on TM media grew N. gonorrhea. Seventy-seven of 85 (90.6%) of Culturette tubes held six hours before plating on TM media grew N. gonorrhea. Forty-four of 85 (51.8%) of Culturette tubes held six hours before plating on TM media grew N. gonorrhea.
Status Completed.

76/01

The following incomplete sets were reprocessed:

Forty of 42 transgrow plates grew N. gonorrhoeae (95.2%).

Twenty of 25 transgrow and Trimethoprin plates grew N. gonorrhoeae (80%).

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Mechanisms Involved in the Formation of 99mTc Labeled
Diphosphonate & Pyrophosphonate as Bone Scanning Agents

WORK UNIT NO: 76/03

PRINCIPAL INVESTIGATOR: John Straw, DAC

ASSOCIATE INVESTIGATORS: N.L. Sass, CPT, PhD

OBJECTIVES

To determine the chemical reaction mechanism and identify products of the reaction used to produce diphosphonate or pyrophosphate bone scanning compounds.

TECHNICAL APPROACH

Commercial kits and in-house prepared kits will be used with 99mTc from various sources in the preparation of diphosphonate and pyrophosphate. A rigorous organic/inorganic qualitative and quantitative analysis using chromatographic (TLC, liquid), electrophoretic, and instrumental (IR, UV, MS) techniques will be conducted. Sufficient samples will be analyzed to establish statistical significance of any new quality control measures developed.

MANPOWER: 0.35 Man Yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY76	\$2357	\$65	-	\$2422

PROGRESS

In an effort to minimize background nuclide uptake on bone scans, the composition of nuclear medicine bone imaging kits was evaluated utilizing liquid and thin layer chromatography. In 99mTc-EHDP kits four components in addition to the desired phosphorus containing components were observed, two of which have been identified. In 99mTc-pyrophosphate kits at least four components in addition to the desired complex were observed. With both kits the extraneous constituents were found to be nonphosphorous containing moieties. The problems of identifying and eliminating all undesired components has not been solved.

STATUS: Ongoing. One paper in press.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Assessment of Various Chromatographic Procedures Determination
of Optimal Quality Control Methods for 99mTc Pharmaceuticals

WORK UNIT NO: 76/05

PRINCIPAL INVESTIGATOR: John Straw, DAC

ASSOCIATE INVESTIGATORS: CPT A.R. Benedetto

OBJECTIVES

To evaluate various chromatographic systems in order to determine the most optimal and rapid system for quality control of Tc-laboratory radiopharmaceuticals so that procedures can be completed before product use.

TECHNICAL APPROACH

Different chromatographic systems will be evaluated by varying system parameters, including solvent systems and various support media themselves. A determination of the most rapid and easily performed procedure that still gives adequate but definitive results will be made.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$2357	\$3500	-	\$2400

PROGRESS

The standard chromatography system (85% methanol and ITLC strips) were compared to two new systems, (1) acetone-ITLC and, (2) 0.9% NaCl-ITLC. Acetone and normal saline give equivalent results but with increased speed, 1/10 and 1/6 the time respectively. A dual solvent system was also tried for Tc-EHDP (acetone, dry ITLC strip, then 0.9% NaCl), three components were then separated, bound, hydrolysed, and free Tc. Also we are studying a computerized gamma camera analysis of our ITLC strips for radiopharmaceutical quality control.

STATUS: Ongoing, two papers in preparation.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Myocardial Perfusion Scanning with Radioactive Particles

WORK UNIT NO: 76/14

PRINCIPAL INVESTIGATOR: COL M.L. Nusynowitz, MD

ASSOCIATE INVESTIGATORS: Nuclear Medicine & Cardiology staff.

OBJECTIVES

To demonstrate myocardial perfusion at the capillary level as an aid in differentiating those patients who are likely to benefit from coronary artery surgery. The injection of radioactive particles in each coronary artery will demonstrate runoff perfusion. This will provide supplemental information to determine candidates for coronary artery surgical procedures.

TECHNICAL APPROACH

Tc^{99m} microspheres and I-131 macroaggregated albumin will be injected into the left and right coronary artery respectively at the time of cardiac catheterization. Imaging will be performed with a gamma camera and the images will be studied for areas of decreased perfusion.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal
FY76 \$337

Equip, Supp
-

OPA
-

Total
\$337

PROGRESS

Approval has been obtained from the Human Use Review Office, OTSG, and equipment and radiopharmaceutical procedures have been readied. We anticipate clinical studies beginning forthwith.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Thallium-201 Chloride for Diagnosis of Myocardial Ischemia and/or
Myocardial Infarction

WORK UNIT NO: 76/15

PRINCIPAL INVESTIGATOR: COL M.L. Nusynowitz, M.D.

ASSOCIATE INVESTIGATORS: Nuclear Medicine & Cardiology staff

OBJECTIVES

To evaluate the clinical efficacy of Thallium-201 Chloride in delineating areas of infarcted myocardium with regard to presence, extent, and healing, and to delineate areas of myocardial ischemia under resting and/or exercise conditions.

TECHNICAL APPROACH

Patients with suspected myocardial infarction or ischemia will be injected with Thallium 201-Chloride. This material, an analog of potassium, is concentrated in well perfused normal myocardium and is not taken up by ischemic myocardia. Images will be obtained to evaluate presence, size, and changes in hypoperfused myocardium under resting or exercise conditions as an aid to the clinical management of these patients.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	-	-	\$337

PROGRESS

Three patients have been studied to date. The images obtained have been of good quality and patients have had no adverse effects. This interim data suggests the utility of the procedure in assessing myocardial infarction and ischemia.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Liver Biopsy Sampling Error in Chronic Hepatitis Role of
Laparoscopically Guided Multiple Liver Biopsies

WORK UNIT NO: 76/18

PRINCIPAL INVESTIGATOR: MAJ Fred Goldner

ASSOCIATE INVESTIGATORS: MAJ J. Greene, COL J.L. Pitcher

OBJECTIVES

To determine whether the severity of the histologic lesion of chronic active hepatitis varies in distribution throughout the liver. Currently a single percutaneous biopsy is used to diagnose and help guide therapy. If there is significant variation in distribution of the pathology, this latter approach may be inadequate.

TECHNICAL APPROACH

Laparoscopy will be used to view the liver of 15 patients with chronic active hepatitis. Four liver biopsies will be obtained from various areas of the liver. Biopsies will be coded and blindly evaluated for certain histologic parameters. Differences among biopsies will be compared.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	-	-	\$337

PROGRESS

Laparoscopy and biopsy have been performed on eleven (11) patients. The biopsies have been assembled and histologic grading has begun. Comparisons are not yet available.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Effect of a Broad Spectrum Antibiotic on the Course of
Viral URI

WORK UNIT NO: 76/23

PRINCIPAL INVESTIGATOR: MAJ E. Young, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine in a controlled double-blind study the effect of an antibiotic on the clinical course of acute viral upper respiratory tract infections with particular attention to any beneficial or deleterious effects of the treatment with respect to secondary bacterial complications.

TECHNICAL APPROACH

Patients admitted to the Acute Respiratory Distress (ARD) Ward without obvious bacterial infections were to be divided into two random groups. One group to receive tetracycline HCL, the other a placebo. The physician taking care of the patients, and the patients themselves, would not know whether they were receiving drug or placebo. The code would be held by the Pharmacy Service. The incidence of complications, in particular, secondary bacterial infections; the total length of fever; the general well-being; length of hospital stay; incidence of adverse drug reaction; and the total cost of treatment would be compared between the two groups.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	-	-	\$337

PROGRESS

The protocol was not approved in time to take advantage of the ARD outbreak for 1976. The principal investigator will be leaving the service, but if the protocol is approved for 1977, it is hoped that his successor may be interested in pursuing this problem.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: ^{99m}Tc Pyrophosphate Bone Scanning Agents in the Diagnosis and
Assessment of Myocardial Infarction

WORK UNIT NO: 76/27

PRINCIPAL INVESTIGATOR: COL M.L. Nusynowitz, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The purpose of this study is to determine the suitability and efficacy of ^{99m}Tc pyrophosphate as myocardial scanning agent in suspected or proven myocardial infarction. Conditions to be studied: (1) Suspected myocardial infarction in patients with questionable or normal electrocardiograms, (2) Proven myocardial infarction diagnosed by EKG or enzyme assay. (3) Progression or extent of the infarct in the above conditions.

TECHNICAL APPROACH

Patients with suspected or proven myocardial infarction will undergo myocardial scanning upon request of the Cardiology Service. Imaging will be performed at the bedside from 12 hours to six days after the onset of chest pain. The results will be compared to the clinical and laboratory findings to determine the accuracy and limitation of this technique in the diagnosis of myocardial infarction and its extent and progress if present.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal
FY76: \$337

Equip, Supp
-

OPA
-

Total
\$337

PROGRESS

Approval from the FDA is pending.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Separation and Identification of CPK Isoenzyme by RIA Technique

WORK UNIT NO: 76/30

PRINCIPAL INVESTIGATOR: MAJ A. Hughes, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To develop a radioimmunoassay method for detecting creatine phosphokinase isoenzymes for diagnostic purposes as indicators of myocardial damage.

TECHNICAL APPROACH

New Zealand white rabbits will be injected with CPK isozymes to elicit antibody production. The isoenzymes will be radiolabelled and standard radioassay procedures will be performed to determine antibody-antigen interaction and specificity.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY 76	\$2357	\$120	-	\$2475

PROGRESS

Rabbits have been injected with CPK isozymes (MM and MB) species and will be bled periodically to determine presence of antibody.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Diagnostic Adrenal Scanning with ^{131}I (NP59)

WORK UNIT NO: 76/33

PRINCIPAL INVESTIGATOR: COL M.L. Nusynowitz, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The purpose of this study is to determine the usefulness of ^{131}I -NP59 in scanning of the adrenal glands. It will be employed for the following purposes: (a) As a screening test for detection of primary aldosterone tumor, Cushing's disease, adrenal cortical adenoma, or pheochromocytoma. (b) Imaging of adrenals in patients who require adrenal venography and are allergic to contrast media. (c) Detection of unilateral adrenocortical hypofunction: calcification, metastatic carcinoma, post-venography infarction, etc. (d) Detection of functioning adrenal remnant after adrenalectomy for Cushing's syndrome. (e) Aid in assessment of adrenocortical steroid therapy.

TECHNICAL APPROACH

Patients with clinical evidence of adrenal disease will be studied upon referral from the Endocrine Service. Adrenal imaging will be performed after injection of the material to assess the presence or absence of visualization of the adrenal glands, their size and response to suppression therapy.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal
FY76 \$337

Equip,Supp

-

OPA

-

Total
\$337

PROGRESS

FDA approval with an IND number is pending.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Umbilical Cord Lactate, Pyruvate, Betahydroxy Butyrate, pCO₂
po₂, and pH Value in Normal and Abnormal Pregnancies.

WORK UNIT NO: 74/01

PRINCIPAL INVESTIGATOR: COL A. Killam, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To study the effect of labor on normal pregnancies and pregnancies complicated by placental insufficiency.

TECHNICAL APPROACH

Maternal amniotic fluid, venous, umbilical arterial and umbilical venous blood samples will be studied for the above levels. The results will be correlated with neonatal outcome and morbidity.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$2728	\$2181	\$9985	\$12,166
FY76	\$ 337	-	-	\$ 337

PROGRESS

Further samples have been collected. Insufficient data has been collected for publication.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Inhibition of the Vascular Effect of Estrogen with Actinomycin D

WORK UNIT NO: 74/10

PRINCIPAL INVESTIGATOR: COL A. Killam, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if the uterine vascular effect of estrogens involves the same mechanism as the uterine growth promoting effect in dogs.

TECHNICAL APPROACH

The increased uptake of amino acids will be blocked with Actinomycin D and uterine blood flow will be measured to see if the Actinomycin D also blocked the increase in uterine blood flow in response to a standard injection of estrogen.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

Electromagnetic flow meters arrived and were assembled in May 76. Will be used starting Oct 76.

STATUS: Ongoing.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Maternal and Fetal Plasma Levels of Steroid Hormones in Normal and Pathological Pregnancies During Labor

WORK UNIT NO: 74/16

PRINCIPAL INVESTIGATOR: COL A. Killam, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if a rapid assay of steroid hormones would be of clinical value if drawn at the onset of labor from maternal vein or fetal scalp.

TECHNICAL APPROACH

Women in labor with a high risk for fetal distress from placental insufficiency will be included as samples upon admission to Labor and Delivery. The radioimmunoassay for estriol is being modified by eliminating some steps and increasing the temperature during incubation.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 327	\$ 2545	-	\$2872
FY76	\$1680	-	-	\$1680

PROGRESS

One paper to be published Amer J Ob-Gyn, July 76, another submitted for publication, a third to be given at the Armed Forces District, ACOG Meeting in September 1976. Also note that the first paper given at the Armed Forces District-ACOG Meeting in October 1975 won the Founders Award for the best paper in basic Ob-Gyn research.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Primate Lung Maturation

WORK UNIT NO : 74/23

PRINCIPAL INVESTIGATOR: COL A. Killam, M.D.

ASSOCIATE INVESTIGATORS: CPT N.L. Sass, PhD

OBJECTIVES

To find a way to accelerate fetal lung maturation and increased neonatal survival in prematures.

TECHNICAL APPROACH

Pregnant monkeys are given adrenal steroids and the level of enzymes involved in surfactant production are studied along with cortisol binding protein in the fetal lungs and the amniotic fluid lecithin/sphingomyelin ratio. Pregnant rabbits are also used.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$3820	\$700	\$5426	\$4520
FY76	\$2357	\$1500	-	\$3850

PROGRESS

Since the last report, two monkeys were studied, but we have been unable to obtain any more monkeys because of a very poor breeding season at the Primate Colony. Subsequently six rabbits have been studied and research indicated that the foetal rabbit lung can be matured at a rapid rate following the administration to the dam of betamethasone (IM) or SoluCortef (IV). The peak of lung surfactant synthesis is reached between six and twelve hours post administration of the steroid.

STATUS: Completed. Rabbits have been used instead, and project completed.
Paper has been accepted for presentation at the Armed Forces District, ACOG.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Prostaglandin E2, Efficacy Study for Termination of Pregnancy
with Fetal Intrauterine Death, Missed Abortion or Hydatidiform Mole

WORK UNIT NO: 75/09

PRINCIPAL INVESTIGATOR: COL W. Scragg, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To study the effect of Prostaglandin E2 in vaginal suppository form to effect evacuation of products of conception in cases of fetal death in utero, hydatidiform mole and missed abortion.

TECHNICAL APPROACH

Hematological, urine and blood chemistries are evaluated three times during the treatment as well as vital signs. Suppositories are utilized as frequently as every two hours if needed.

MANPOWER: 0.03 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

Nine patients have been treated with this therapy. Seven had fetal death in utero and two had hydatidiform moles. The response is very effective and has proven safe with the only complication being postpartum hemorrhage secondary to retained placenta in one patient which was resolved by D&C.

STATUS: Ongoing. Data is being collected for presentation at the American Fertility Association.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Prenatal Instruction for Adolescents

WORK UNIT NO: 75/35

PRINCIPAL INVESTIGATOR: 1LT P.R. Mitchell, ANC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The purpose of this study is to determine if prenatal instruction geared to the needs of pregnant adolescents results in a reduction in complications associated with pregnancy, labor, delivery and postpartum.

TECHNICAL APPROACH

Three groups of pregnant adolescents (ages 18 and under) will be studied. Members of each group will attend an OB Processing Class by the OB-Gyn nurse clinician and receive routine clinic prenatal care, delivery and postpartum care at William Beaumont AMC. Assignment to each group will be voluntary on the part of the patients. Group A will receive no additional instruction unless obtained on their own initiative. Group B will have been invited to a series of Young Mother's Classes given by the Ob-Gyn nurse clinician, but chose not to take advantage of the classes. Group C will have attended the Young Mother's Class.

MANPOWER: 0.10 Man yrs

FUNDING:	Civ Sal	Equip Supp	OPA	Total
FY75	\$1091	-	-	\$1091
FY76	\$ 673	-	-	\$ 673

PROGRESS

Project has been completed and will be presented at the Armed Forces District ACOG, 1976. The results of this study indicated that those adolescents who had attended the formal prenatal institution classes offered showed fewer complications during their pregnancies. The same results were observed in the group of age 16 and over. A high level of statistical significance was unattainable due to the size of the sample population.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Relationship of Maternal Serum Estriol (E-3) Levels to Fetal
Maturity on the Onset of Labor

WORK UNIT NO: 76/10

PRINCIPAL INVESTIGATOR: COL J. Sakakini, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if the pattern of maternal serum estriol concentration can be clinically useful in predicting fetal maturity and the onset of labor.

TECHNICAL APPROACH

Serum samples will be collected and estriol-RIA procedures conducted. Correlation of these results with standard predictors of fetal maturation will be made.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal
FY76 \$337

Equip, Supp
-

OPA
-

Total
\$337

PROGRESS

Data has been collected and analyzed, this paper will be published in Amer J Ob-Gyn. This project has been awarded the Founder's Award for the Armed Forces District, ACOG, as the best basic research in Ob-Gyn in FY76. This research has shown that the "Estriol Surge" at 35-36 weeks of gestation is followed by an increase in fetal lung surfactant synthesis, indicative of lung maturation. This estriol surge is consistent in the time of its occurrence and can be used to predict the time of the onset of partuition \pm one week.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Serum Estriol Levels as Predictors of Fetal Lung Maturity

WORK UNIT NO: 76/11

PRINCIPAL INVESTIGATOR: COL J. Sakakini, Jr., M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if we can establish the fact that the L/S (lecithin-sphingomyelin) surge has preceded the estriol (E₃) surge which occurs at 36 weeks, thus indicating fetal lung maturity.

TECHNICAL APPROACH

Serum samples and clinically indicated amniocenteses will be analyzed and correlated to determine the timing sequence between the estriol surge and the rise of the L/S ratio.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$1680	-	-	\$1680

PROGRESS

Data collected and paper is to be presented at the Armed Forces District, ACOG, meeting. This research indicated that the time of the detection of the estriol surge could indicate the start of the rapid lung maturation phase of the fetus. This surge, occurring during week 35-36 of gestation, is an accurate and reproducible marker for dating the course of the gestation and precedes the rise of lung surfactant enzyme synthesis by one to one and one half weeks.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Effect of Uterine Blood Flow on Placental Transport

WORK UNIT NO: 76/17

PRINCIPAL INVESTIGATOR: COL A. Killam, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine how altering uterine blood flow affects placental transport of different metabolites.

TECHNICAL APPROACH

Measure uterine blood flow by electromagnetic flow probe and placental transport by Fick principle, then reduce flow with a mechanical noose and repeat placental transport measurements.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$2357	-	\$3820	\$6175

PROGRESS

Flow probe system has been assembled. Sheep have been purchased and work to be started Oct 76.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Protein Supplementation of the Diets of Women with Positive Supine Hypertensive (Roll-Over) Tests

WORK UNIT NO: 76/19

PRINCIPAL INVESTIGATOR: MAJ Phillips

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To see if protein supplementation would reduce the incidence and severity of toxemia.

TECHNICAL APPROACH

Control or test diet would be given to pregnant teenagers with positive roll-over tests.

MANPOWER: 0.10 Man yrs

FUNDING: Civ Sal
FY76 \$673

Equip Supp
-

OPA
-

Total
\$673

PROGRESS

In progress. Baseline data have been obtained and reported at the Armed Forces District ACOG Meeting, San Antonio, Sept 75.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Comparison of Clinical and Laboratory Measurements of Gestational Age to the Actual Gestational Age as Determined by Last Ovulation

WORK UNIT NO: 76/20

PRINCIPAL INVESTIGATOR: COL David Boyce, M.D.

ASSOCIATE INVESTIGATORS: COL Allen Killam, MAJ Frank Bowen, MAJ R. Hanson

OBJECTIVES

To test the reliability of clinical and laboratory methods of gestational age assessment by comparing the assessments to true gestational age as determined by basal body temperature curves defining last ovulation.

TECHNICAL APPROACH

Patients volunteering to record basal body temperatures prior to conception will be monitored throughout their pregnancy by serial sonography and serum estriols. The neonate will be evaluated for gestational age both in blinded and unblinded studies.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	-	-	\$337

PROGRESS

The study is only in the very early stages with no data available at present.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Estriol Production Rate Studies in Pregnant Women

WORK UNIT NO: 76/29

PRINCIPAL INVESTIGATOR: LTC L. Penny, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

Determination of estriol production rates in normal pregnant women and correlation in abnormal gestations with the clinical outcome.

TECHNICAL APPROACH

Estriol production rates will be estimated by the infusion of deuterated estriol into these women followed by subsequent serum sampling. A measurement of the amount of deuterioestriol present in extracted estriol samples relative to the total amount of estriol extracted would indicate the rate of endogenous estriol synthesized by the patient.

MANPOWER: 0.05 Man Yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	-	-	\$ 337

PROGRESS

Awaiting formal IND permit as suggested by Human Use Review Committee.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Molecular Etching

WORK UNIT NO: 70/111

PRINCIPAL INVESTIGATOR: B.E.F. Reimann, DSc

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To obtain general information on the ultrastructure of biological membranes (in particular the erythrocyte membrane) and other cellular organelles in order to discern their structural changes under varying experimental (and disease related) conditions and, for this reason, to develop techniques by which the biological material can be investigated in the least altered state employing methods such as freeze drying and ionic etching in conjunction with electron microscopy.

TECHNICAL APPROACH

The final goal is to subject lyophilized embedded biological material to a bombardment with accelerated ions or atoms and to reveal the obtained structures by electron microscopy. Presently the experiments are primarily concerned with osmotic pressures of erythrocytes employing freezing point depression osmometry and direct measurements with a Pfeffer's cell. A "critical point" drying chamber is to be constructed.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip Supp	OPA	Total
FY75	\$1091	-	-	\$1091
FY76	\$ 337	-	-	\$ 337

PROGRESS

The "critical point" drying chamber is operational, and the publication of the paper is still pending. Experiments were extended aiming at the incorporation of heavy metals into tissue blocks. The experiments, employing mainly OsO₄ as contrasting agent, did not aim to maintain the contrasting characteristics conventionally attributed to OsO₄, but instead were solely concerned to permit a discerning of structural entities within the cell. After conventional fixation with glutaraldehyde and with or without post-fixation with OsO₄, the cell material (human fibroblasts) was exposed to various concentrations of xylene-acetone (30, 60, & 100% xylene) followed by a subsequent treatment with OsO₄ dissolved in carbon tetrachloride. This latter exposure was done using various time and temperature values. The greatest general increase in contrast was obtained using an incubation

STATUS: Ongoing

70/111

for 30 minutes at 65°C in the xylene 60%. The staining properties are generally the same as in conventionally treated material. Differences seem to occur in the preservation of proteins. The method makes it unnecessary to use a post-contrasting of sections. Membrane preservation is extremely good. Further evaluation of the results is necessary.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE : Injected Marihuana: Effects of Cannabinol

WORK UNIT NO: 71/38

PRINCIPAL INVESTIGATOR B.E.F. Reimann, DSc

ASSOCIATE INVESTIGATORS : Eleanor Duke, PhD

OBJECTIVES

To determine the possible toxic effect of intravenously injected cannabinoids in aqueous decoctions of marihuana.

TECHNICAL APPROACH

The project uses the Duquenois-Negm reaction modified by Lewin, thin layer chromatography and gas-liquid chromatography to determine amounts of cannabinoids in aqueous and other extractions.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 327	-	-	\$ 327
FY76	\$ 337	-	-	\$ 337

PROGRESS

Experiments involved separation of various THC's by TLC of various extraction methods from plant material with the aim of obtaining a quantitative separation as a prerequisite for the subsequent quantitative assay.

STATUS Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: An Evaluation of Rh Sensitization of Rh Negative Infants Born
to Rh Positive Mothers

WORK UNIT NO: 74/26

PRINCIPAL INVESTIGATOR: MAJ F Bowen, MD

ASSOCIATE INVESTIGATORS: MAJ D. Turbeville, MD; Mr Lionel Pleasant (DAC)

OBJECTIVES

To determine if Rh-negative infants born of Rh-positive mothers are sensitized to Rh-positive RBC at birth rather than during gestation; to administer and test efficacy of RhoGam in preventing Rh sensitization in infants if part one results are positive.

TECHNICAL APPROACH

Paired blood samples (cord blood) and samples taken between one month and 6 months will be tested for anti-D by automated techniques. RhoGam will be administered to Rh-negative female infants born to Rh-positive mothers and blood will be serially sampled for analysis of anti-D by automated technique.

MANPOWER: 0.25 Man yrs

FUNDING:	Civ Sal	Equip Supp	OPA	Total
FY75	\$2728	\$113	-	\$2841
FY76	\$1684	-	-	\$1684

PROGRESS

This study showed that infants can respond to Rho(D) positive erythrocytes with the formation of Rho(D) antibodies. With further experimentation it is hoped that the Rho(D) human immune globulin could be used in immunoprophylaxis of Rho(D) negative infants whose mothers are Rho(D) positive.

STATUS: Completed. Data published in Pediatric Research 10:213, 1976

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: An Evaluation of Choline Phosphotransferase (CPT) in Newborn
Cord Blood, Amniotic Fluid and Pharyngeal Secretions

WORK UNIT NO: 74/23

PRINCIPAL INVESTIGATOR: MAJ F Bowen, MD

ASSOCIATE INVESTIGATORS: CPT N.L. Sass, PhD

OBJECTIVES

To measure choline phosphotransferase in cord blood, amniotic fluid and pharyngeal secretions and compare measurements to the clinical presentation of Hyaline Membrane Disease.

TECHNICAL APPROACH

Collect amniotic fluid from routine amniocentesis. Collect cord blood and pharyngeal secretions from infant at delivery. Collect lung tissue from autopsy and primates to standardize technique.

MANPOWER: 0.35 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$3820	\$ 223	\$7605	\$11648
FY76	\$2357	-	-	\$2357

PROGRESS

Radioactive substrates and lung tissue to standardize technique have been obtained. Process for enzyme identification completed. Eight samples tabulated. Papers in preparation describing results and technique. The initial results show increased specific activity of semi-purified enzymes upon administration of normal steroid therapy. Portion of data to be reported in talk at the Armed Forces District ACOG Meeting September 1976 in conjunction with data on rabbit lung maturity.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: A Single Blind Study to Determine the Effects of Corticosteroids
on Subsequent Developments of Infants Subjected to Severe Intra-
partum Asphyxia
WORK UNIT NO: 74/47

PRINCIPAL INVESTIGATOR: MAJ F. Bowen, M.D.

ASSOCIATE INVESTIGATORS: MAJ D.F. Turbeville MD; CPT R.E. Heath Jr.; MD

OBJECTIVES

To assess the effect of steroids on subsequent development in asphyxiated infants as measured by the Bayley Infant Developmental Test.

TECHNICAL APPROACH

This study will be conducted in a single blind fashion. A psychologist with no previous knowledge of the case histories of the patients entered into the study will administer the Bayley Test. From the results of this test he will attempt to ascertain indications of previous incidents of asphyxia and/or steroid treatment to prevent or reverse the effects of asphyxial states.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip Supp	OPA	Total
FY75	\$1060	\$240	-	\$1300
FY76	\$ 337	-	-	\$ 337

PROGRESS

Eight infants were entered into study. Testing results were not obtained due to the departure of the psychological investigator. Additional support has been obtained from the Psychology Svc, WBAMC, and the project will be resumed with the addition of new cases.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Indomethicin Effects on Labor and the Fetus

WORK UNIT NO: 75/01

PRINCIPAL INVESTIGATOR: COL J Sakakini, MD; COL A Killam, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To see if Indomethicin and its derivatives will alter the artificial onset of premature labor in primates. To see if Indomethicin and its derivatives will alter pulmonary maturity and amniotic fluid prostaglandin levels of the primate fetus.

TECHNICAL APPROACH

Pregnant female monkeys will be given 100 mg Indomethicin by feeding tube daily starting at 80% gestation. Four of these will receive the drug until 105% gestation. Each week these 4 will have amniocentesis performed for L/S ratio, CPT level and prostaglandin F2 levels. At 105% gestation the fetus will be delivered by Cesarean section. Amniotic fluid and uterine vein blood samples will be collected for prostaglandin F2 analysis and decidua for electron microscopic studies. The remaining 6 monkeys will have a portion of the decidua and the uterine wall ligated on the day the Indomethicin treatment is begun at 80% of gestation. Amniocentesis will be done at the time of their surgery and repeated 1 week later. Two weeks following the original surgery the fetus will be delivered by Cesarean section. Amniotic fluid, uterine vein blood and decidua will be obtained and tested as above. Six control monkeys will be used.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$ 327	<u>PROGRESS</u>		\$327
FY76	\$ 337	-	-	\$337

Due to lack of monkey availability no progress has been made and the project has been terminated.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Correlation of Choline Phosphotransferase Activity in Human Amniotic Fluid and Neonatal Nasopharyngeal Aspirates

WORK UNIT NO: 76/34

PRINCIPAL INVESTIGATOR: MAJ J.B. Haddock, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To construct normograms of the activity of choline phosphotransferase in human amniotic fluid with respect to gestational age and activity of the enzyme in neonatal nasopharyngeal secretions at 6 hour intervals from birth. These levels will be related to the occurrence of idiopathic respiratory distress syndrome in the neonate. The ultimate objective is to determine whether this enzyme activity is a better predictor of idiopathic respiratory distress syndrome than the currently used lecithin/sphingomyelin ratio.

TECHNICAL APPROACH

Concurrent with otherwise medically indicated amniocenteses, 10 milliliters of amniotic fluid will be obtained and analyzed for choline phosphotransferase and phosphatidate phosphohydrolase activities. A normogram of enzyme levels with respect to gestational age will be constructed. These levels will then be correlated with the occurrence of idiopathic respiratory distress syndrome to see indeed if one or both are better predictors of the syndrome. Additionally, routine nasopharyngeal suction material will be collected at 6-hour intervals on neonates and analyzed for this enzyme activity. Levels of activity will be compared to the course of the disease in hopes of developing an objective technique for differentiating idiopathic respiratory distress syndrome from other causes of respiratory distress in the neonate.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip. Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$2357	\$950	-	\$3300

PROGRESS

New Project.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Correlation of Amniotic Fluid Cortisol and the Free Estriol
TITLE: Surge in Maternal Plasma

WORK UNIT NO: 76/33

PRINCIPAL INVESTIGATOR: LTC L.L. Penny, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To confirm the amniotic fluid cortisol levels of the study mentioned above. To correlate these levels with the maternal free estriol surge and the amniotic fluid L/S ratio and attempt to determine if the cortisol increase is also nonlinear and, if so, if it precedes or follows the free estriol surge.

TECHNICAL APPROACH

The amniotic fluid cortisol concentration and L/S ratios on each specimen submitted will be determined, as will plasma free estriol and cortisol when each amniocentesis is performed. The indications for amniocentesis will be based on currently accepted clinical criteria and the decision for the procedure will be made by attending and resident staff managing the patient. The analyses will be done by radioimmunoassay and TLC as presently performed in the RIA laboratories. The data will be subjected to regression analysis and appropriate rank correlation.

MANPOWER: 0.10 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$ 673	-	-	\$673

PROGRESS

New project, not started as yet.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Arterial-Venous Amino Acid Gradients in Rhesus Monkey Infants
TITLE: Receiving Total Intravenous Alimentation

WORK UNIT NO: 75/02

PRINCIPAL INVESTIGATOR: MAJ Frank Bowen, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The study is designed to determine the A-V gradients of the various amino acids across the brain in infant monkeys receiving intravenous amino acids.

TECHNICAL APPROACH

Infant rhesus monkeys (maintained in Armstrong heaters) will be studied from Day 2 to Day 5 postpartum. Forty-eight hour IV infusions through the lateral jugular vein will be performed using 10-15% dextrose or that amount necessary to maintain the blood glucose between 80-120 mg%. The infusate will contain 2 gms/kg of amino acid hydrolysate (Freeamine) and will be run at 100 cc/kg per day. Blood Glucose, pH, urine output, specific gravity, urine glucose and protein will be measured daily. Forty-eight hours after infusion, 5 cc of blood will be aspirated from the jugular vein. This will be sent out for amino acid analysis. On Day 5 the animal will be sacrificed and autopsied.

MANPOWER: 0.35 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$1091	\$ 637	-	\$1729
FY76	1683	-	-	\$1683

PROGRESS

Poor breeding season necessitated postponement until future availability of monkeys.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Effects of Bicarbonate Therapy and Hypoxia on CNS Hemorrhage
in Cats

WORK UNIT NO: 75/03

PRINCIPAL INVESTIGATOR: MAJ D Turbeville, MD

ASSOCIATE INVESTIGATORS: COL A. Killam, MD; MAJ F Bowen, MD

OBJECTIVES

To compare differences between hypoxia and sodium bicarbonate therapy on the incidence of CNS bleeding in cats.

TECHNICAL APPROACH

Four groups of cats were treated with either hypoxia and bicarbonate therapy, bicarbonate therapy, or nothing in comparing CNS hemorrhages.

MANPOWER: 0.25 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 2728	\$463	-	\$1729
FY76	\$ 1684	-	-	\$1684

PROGRESS

Bicarbonate use/ in the treatment of hypoxia was found to cause CNS hemorrhage as well as affecting normal serum osmolality, sodium concentration, and pO₂ and pCO₂, while CNS hemorrhage was not a direct result of the hypoxic state alone. One paper has been submitted for publication.

STATUS: Completed. Paper accepted, published J Pediatrics July 76.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

The Identification of Group B Streptococcal Antigen (GB-SA) in
TITLE: Amniotic Fluid by Counterimmunoelectrophoresis (CIE)

WORK UNIT NO: 75/06

PRINCIPAL INVESTIGATOR: CPT R. E. Heath, Jr. M.D.

ASSOCIATE INVESTIGATORS: LTC J Brown III, M.D.

OBJECTIVES

To determine if the CIE method of antigen detection can be used as a reliable method for identifying GB-SA in amniotic fluid at the time of delivery. To determine if detection by this method can be correlated with colonization and disease in the neonate.

TECHNICAL APPROACH

Routine vaginal cultures for GROUP B strep will be taken at 30 and 36 weeks' gestation. All infants will have umbilical, skin, throat, and gastric aspirate cultures taken upon arrival in the nursery. Amniotic fluid samples will be obtained from all diagnostic amniocenteses along with a routine vaginal culture. These will be subjected to CIE for GB-SA by the method of Levin, and results correlated with reference to positive vaginal cultures, positive infant cultures, positive infant gastric aspirate, and incidence of clinical disease in the neonate.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip Supp	OPA	Total
FY75	\$327	-	-	\$ 327
FY76	\$337	-	-	\$ 337

PROGRESS

Project terminated due to the lack of positive initial data on existing equipment.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Comparison of Betamethasone and SoluCortef in Fetal Pulmonary Maturity

WORK UNIT NO: 75/14

PRINCIPAL INVESTIGATOR: MAJ R. Heath, MD; COL J Sakakini, Jr., MD

ASSOCIATE INVESTIGATORS: COL A.P. Killam, MD; MAJ F Bowen, MD

OBJECTIVES

To compare the speed and efficacy of betamethasone and SoluCortef in enhancing fetal pulmonary maturity in humans and in rabbits.

TECHNICAL APPROACH

Fetal rabbits at a defined time in gestation are given SoluCortef and betamethasone and at varying times, the animals are sacrificed, with comparison of lung surfactant levels in an effort to compare the efficacy of betamethasone and SoluCortef in maturing fetal lungs.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civil Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$2728	-	-	\$2728
FY76	\$2357	-	-	\$2357

PROGRESS

This study showed that both Betamethasone (IM) and SoluCortef (IV) rapidly promoted pulmonary surfactant synthesis (6-12 hrs post-administration) at the level of the fetal enzyme choline phosphotransferase. These steroids can be effectively used to increase pulmonary maturity in preterm foeti with no deleterious effects.

STATUS: Study completed. Abstract accepted for Armed Forces Division ACOB Meeting, September 1976. Paper to be submitted.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Complement Levels in Newborns with Elevated Cord Blood
TITLE: Immunoglobulin M (IgM)

WORK UNIT NO: 75/26

PRINCIPAL INVESTIGATOR: MAJ F. Bowen, MD

ASSOCIATE INVESTIGATORS: MAJ D Turbeville, MD; MAJ R Heath, MD

OBJECTIVES

To document complement levels in newborns who are born with elevated cord blood immunoglobulin levels.

TECHNICAL APPROACH

All newborns will, at birth, have cord IgM levels run. If the cord IgM level is elevated beyond normal, complement levels will also be determined.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal

		<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$1091	\$ 215	-	\$ 1307
FY76	\$ 337	337	-	\$ 337

PROGRESS

Project terminated due to new data in the literature. This data, published in the New England Journal of Medicine, indicated that newborns with complications of intrauterine infections possessed elevated serum IgM and IgG levels. This was due to their own endogenous production of the 19S globulin fraction to combat this source of infection.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE : Chemotherapy of Cancer

WORK UNIT NO: 76/07

PRINCIPAL INVESTIGATOR: Dr. J Swaney, M.D.

ASSOCIATE INVESTIGATORS :

OBJECTIVES

The association of William Beaumont Army Medical Center's Pediatric Oncology and Hematology Service with the various members of the Southwest Cancer Chemotherapy Study Groups, Pediatric Division (through M.D. Anderson Hospital and Tumor Institute), Acute Leukemia Group B, and with the Children's Hospital Oncology Center, Denver, Colorado, in conducting trials of chemotherapy in cancer will (1) obtain the necessary understanding of the cancer process; (2) determine effective therapeutic approaches; and (3) provide needed information to use in the care of children with malignant diseases. The association provides for probing of common knowledge and for better statistical evaluation of processes and results.

TECHNICAL APPROACH

Each protocol used by the various aforementioned groups goes through a rigorous process of review, revision, and evaluation prior to becoming activated for group usage. The flow of protocol from author through specific disease committee, statistician, committee headquarters, studies management board, Cancer Investigation Branch of the National Cancer Institute is usual process. Data collected by each member is reviewed and analyzed by the individual data sent.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$ 337	-	-	\$ 337

PROGRESS

Protocol on ALGB#7421: The single patient originally on this protocol from another institution was not maintained on this at this institution.

Protocol on ALGB #7411: The single patient on this regimen continues in remission to this time. Toxicity to drug has been minimal. She will be continued for an indefinite period.

Denver Children's AL #3 HR: The Single patient on this protocol is now 30 months since initiation of therapy and continues in complete remission. Maintenance drugs are at 2/3 calculated dose because of liver toxicity. Therapy will be continued for a period of three years from time of maintenance initiation.

STATUS:Ongoing

76/07

Denver Children's AL #3: No patients are presently on this regimen.

SWG #7319: No patients entered.

SWG: Adjuvant chemotherapy is Osteogenic Sarcoma: The single patient on this study has finished her chemotherapy with no evidence of metastatic disease. There was no drug toxicity except minimal WBC suppression. She has since relocated elsewhere but is being followed for any further evidence of disease.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Echocardiographic Assessment of Congestive Heart Failure in
Premature Infants with Respiratory Disease

WORK UNIT NO: 76/22

PRINCIPAL INVESTIGATOR: MAJ Heath, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To compare and evaluate different techniques for assessing congestive heart failure.

TECHNICAL APPROACH

We are continuing to evaluate newborns at birth and follow them serially with echocardiograms until they are asymptomatic.

MANPOWER: 0.10 Man yrs

FUNDING: Civ Sal
FY76 \$674

Equip, Supp
-

OPA
-

Total
\$674

PROGRESS

This research resulted in the establishment of criteria which predict with 100% accuracy the occurrence of neonatal congestive heart failure by assessing the physical dimensions of the heart with respect to EKG findings. The study is being continued in an attempt to develop criteria useful for the prediction of future cardiac failure. The results were presented at the 1976 Uniformed Services Pediatric Seminar, and has been submitted for publication.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

The Use of Elliott's B Solution, Sterile as Methotrexate
TITLE: Diluent for Intrathecal Use

WORK UNIT NO: 76/28

PRINCIPAL INVESTIGATOR: Dr J Swaney, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The object of this study is to determine if the use of Elliott's B solution as diluent for intrathecal Methotrexate will reduce the evidence of side effects, i.e., headaches, fever, vomiting, etc.

TECHNICAL APPROACH

Patients are eligible for this study who are receiving intrathecal Methotrexate either as prophylaxis or for treatment of central nervous system leukemia. Methotrexate 2.5 mg/cc or 25 mg/cc will be diluted to either as a concentration of 1 mg/cc with Elliott's B solution. The dose of Methotrexate shall be calculated at 12 mg/M² per dose with a maximum of 15 mg/M² per dose. The timing of the intrathecal injection shall be individually determined. Records shall be kept of patient status following injection as regards headache, fever, nausea, vomiting, etc. Response shall be determined by absence of side effects or their diminution if they had been previously present. Possible CNS contamination from injection of foreign material may result in toxicity which may be evidenced by fever, headache, nausea, and/or vomiting following intrathecal injection of Methotrexate diluted with Elliott's B solution. Approximately 10 patients per year will be treated on this protocol. MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	<u>PROGRESS</u>	-	\$ 337

This medication has not been used to this time because of technical problems involved with mixing at the time of instillation of Methotrexate. The quantitative and filtration problems at the time of use are being evaluated.

STATUS Ongoing.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Evaluation of the Communication Skills of the Instructors and
TITLE: Advisors of the U.S. Army Sergeants Major Academy, FBT

WORK UNIT NO: 74/38

PRINCIPAL INVESTIGATOR: CPT Laskow, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To establish a program to maximize and/or improve the communication skills of the instructors (Faculty Group Members) and advisors (Faculty Advisors) of the Sergeants Major Academy, Ft Bliss TX.

TECHNICAL APPROACH

A collection of the data on the communications skills of the Faculty Advisor population was conducted in a pre-post-experimental design. A collection of the data on a behavioral checklist for Faculty Group Members was conducted in a pre-post control group experimental design. Both the Faculty Advisors and Faculty Group Members underwent training programs that were dissimilar in content and format.

MANPOWER: 0.05 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$1091	\$ 42	-	\$1133
FY76	\$ 337	-	-	\$ 337

PROGRESS

For the Faculty Advisor Program, the analysis indicated a significant change in their ability to discriminate helpful from nonhelpful responses to USASMA students in counseling situations. Also, the same population demonstrated an increase in verbal demonstration of these skills. For the Faculty Group Members, the preliminary statistical analysis suggested that the data from devised instrument was contaminated by several sources of extraneous variation, therefore rendering it invalid. No comparisons between experimental and control groups or between administration over time were conducted. Other observed outcome was that the Faculty Group Member population became a solidified unit which collectively drew up recommendations for change and submitted to appropriate USASMA personnel. Several of these recommendations were approved and implemented as policy.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Assessment of Psychological Involvement in Patients Presenting
TITLE: with Back Problems.

WORK UNIT NO: 75/29

PRINCIPAL INVESTIGATOR: MAJ Frank H. Rath, Jr.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To improve psychological assessment procedures using the MMPI with patients presenting with low back problems and better define those MMPI profiles reflecting premorbid personality dispositions which contraindicate medical/surgical intervention of low back pain syndromes.

TECHNICAL APPROACH

All outpatients in the Orthopedic Clinic presenting with low back pain which meet the criteria will be requested by the attending physician to complete the MMPI, until a sample size of 500 completed MMPI profiles are obtained. This should take approximately 12 months (the present rate of such patients is estimated at 30-50 per month). All inpatients on Orthopedic wards scheduled for either conservative treatment of low back problems or surgery (spinal fusion or dissection) will be administered the MMPI.

MANPOWER: 0.10 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$1091	-	-	\$1091
FY76	\$ 674	\$300	-	\$ 974

PROGRESS

New project. Test kits have been ordered and project is underway. Testing has been initiated and full initial data has been gathered on 60 subjects and six month followup evaluations are pending on the first subjects. Subjects will continue to be gathered for the study, with a revised target sample size of 150.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Use of Proplast in Osteoplastic Surgery of the Frontal Sinus

WORK UNIT NO: 75/15

PRINCIPAL INVESTIGATOR: MAJ Schenck, M.D.

ASSOCIATE INVESTIGATORS: CPT M. Tomlinson, DVM

OBJECTIVES

To evaluate a new implant material (Proplast) for potential use in frontal sinus surgery, as a means of inducing obliteration.

TECHNICAL APPROACH

Mongrel dogs will be subjected to frontal sinus osteoplasty with the implantation of proplast. The dogs will be sacrificed at three month intervals to one year post surgery to determine the permanance and lack of detrimental pathology resulting from the implantation of this synthetic material.

MANPOWER: 0.10 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$ 327	-	-	\$327
FY76	\$ 673	-	-	\$673

PROGRESS

By six months, proplast appears to obliterate the canine frontal sinus cavity without infection or mucocoele formation. Paper is in press for the Archives of Otolaryngology and Laryngoscopy.

STATUS : Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
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EL PASO, TEXAS 79920

DETAIL SHEET

Pathogenesis of the Stress Ulcer Syndrome: A Prospective Study
TITLE: of Gastrin in 50 Trauma Patients

WORK UNIT NO: 75/19

PRINCIPAL INVESTIGATOR: CPT G. B. Williamson , MC

ASSOCIATE INVESTIGATORS: LTC J. Peacock, MD

OBJECTIVES

To investigate the role of serum gastrin in the pathogenesis of stress ulcer in 50 trauma patients.

TECHNICAL APPROACH

Serum gastrins along with routine lab and nasogastric secretions are collected on each trauma patient upon admission and for at least 5 days thereafter. Gastrointestinal bleeding will be identified and its source identified by endoscopy. Possible correlation of serum gastrin values with clinical GI bleeding will be determined.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327
FY	\$337	-	-	\$337

PROGRESS

None reported

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Effect of Peripheral Vasoconstriction on Thrombin Activation
TITLE: of Intravascular Clotting

WORK UNIT NO : 75/21

PRINCIPAL INVESTIGATOR: BGen R. M. Hardaway, III MD

ASSOCIATE INVESTIGATORS :

OBJECTIVES

To test the thesis that the production of vasoconstriction will prolong and intensify the intravascular coagulation effect of thrombin.

TECHNICAL APPROACH

Dogs will be paired in a control group and a treatment group. The control animals will receive an initial infusion of saline while the treated group will receive methosamine in saline. After an infusion period of five minutes a second infusion of bovine thrombin will be started in both groups. Blood pressures will be monitored for two hours. Blood samples will be drawn at specified intervals before, during and after the infusion periods. These samples will be analyzed for platelets, prothrombin time, fibrinogen, fibrinolysins and fibrin split products.

MANPOWER: 0.35 Man yrs

FUDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$2728	\$ 735	-	\$3464
FY76	\$2357	60	-	\$2410

PROGRESS

The use of dogs was curtailed due to the high endemic rabies incidence in local mongrel dogs. This study was completed using rabbits. This study showed that a thromboplastic substance in the blood stream causes little disseminated intravascular coagulation (DIC) if blood flow is normal. If the same amount of material is present with slowed capillary flow, it will produce DIC and possible death.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Measurement of Antibiotic Levels in the Ventricular Fluid of
TITLE: Patients with Indwelling Ventricular Catheters

WORK UNIT NO: 75/31

PRINCIPAL INVESTIGATOR: MAJ J. R. Smith, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To assess serum and ventricular fluid levels of Methicillin, Kanamycin, and Gentamycin, and determine what IV dosage would be necessary to obtain MIC (minimum inhibitory concentrations) in ventricular fluid against most likely infecting organisms.

TECHNICAL APPROACH

Measurement of serum and ventricular fluid levels of each antibiotic 1/2 hr, 1 hr after last dose as well as 1/2 hr, 1 hr before next dose of IV antibiotic to have time profile of ventricular fluid level of each antibiotic as well as to determine if at given IV doses, ventricular fluid levels are sufficient to be of MIC to more common organisms for which antibiotic is being given prophylactically.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

This protocol never received HURO approval.

STATUS: Terminated upon the departure of the principal investigator.

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Compartmental Pressure Studies of the Legs of Traumatized Patients

WORK UNIT NO: 76/04

PRINCIPAL INVESTIGATOR: CPT J.C. Wright, MC

ASSOCIATE INVESTIGATORS: COL R J Bagg, MC

OBJECTIVES

To study the intercompartmental pressures of the anterior and posterior compartments of legs of at least 5 but not more than 25 patients following disease or injury and comparing these pressures with two groups of normal volunteers and volunteers following strenuous physical activity. These intercompartmental pressure values will be correlated with the clinical picture in cases of diseases or injury (increasing circumference, pain, decreased spot or activity or sensation, and quality of distal pulses), and subsequent treatment of these extremities will be made without regard to values of the pressure study. A determination will be made as to whether intercompartmental pressures offer significant advantage in determining the need for fasciotomy over known clinical parameters.

TECHNICAL APPROACH

An 18 gauge needle will be inserted into the anterior and posterior compartments of the leg following a sterile prepping of the area. The technique of recording intercompartmental pressure will be the same as described by Whiteside in 1975. Upon completion of the study, the compartmental pressure obtained will be correlated with the clinical picture.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$337	-	-	\$337

PROGRESS

To date eight individuals have had the anterior and posterior compartments studied following trauma to their lower extremities or exercise stress. The pressures in these subjects were found to be within what was considered normal limits and by clinical parameters a fasciotomy was not done. A followup of these individuals is pending.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Post Traumatic Hepatic Dysfunction Study

WORK UNIT NO: 76/08

PRINCIPAL INVESTIGATOR: MAJ Hartong, M.C.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To ascertain the etiology and pathophysiology of patients admitted to the Trauma Center who develop post-traumatic hepatic dysfunction.

TECHNICAL APPROACH

Liver chemistries are performed on a scheduled basis on patients admitted with criteria developed for the study which basically consists of severe shock and multiple injuries other than liver. Liver biopsies are done on those individuals who exhibit chemical evidence of hepatic dysfunction.

MANPOWER: 0.10 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$ 674	-	-	\$674

PROGRESS

Due to the limited number of patients meeting the pre-established criteria for entry into the study very few patients have been entered.

STATUS: Ongoing

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EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Development of a Computerized Trauma Registry

WORK UNIT NO: 76/09

PRINCIPAL INVESTIGATOR: MAJ Hartong, MC

ASSOCIATE INVESTIGATORS :

OBJECTIVES

To develop a computerized trauma registry for data recall on all patients admitted to the Trauma Center.

TECHNICAL APPROACH

A coding system was developed which has enabled identification of injury, mechanism of injury, diagnostic and therapeutic procedures employed on all patients admitted to Trauma Center. The numbering system developed is similar to but not identical to that used in the ICDA-8.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal
FY76 \$ 337

Equip, Supp

-

OPA

-

Total
\$ 337

PROGRESS

About 250 charts have been coded and put into the computer. As facilities and time permit more charts will be coded and entered.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Investigation of the Etiology and Pathophysiology of Post-
TITLE : Traumatic Hepatic Dysfunction

WORK UNIT NO: 76/13

PRINCIPAL INVESTIGATOR: MAJ Hartong, MC

ASSOCIATE INVESTIGATORS: CPT R.S. Dixon, VC
MAJ J. Greene, MD

OBJECTIVES

To define the etiology and pathophysiology of post-traumatic hepatic dysfunction.

TECHNICAL APPROACH

Twenty-five laboratory bred beagles were utilized in the project and broken into various groups for study. A shock/trauma model was developed and utilized in this project. Liver function tests, blood gases, tissue pO₂ and pH were measured in all animals. Sequential liver biopsies were performed.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY76	\$ 235	\$7325	\$23000	\$32 682

PROGRESS

A shock trauma model employing laboratory bred beagle dogs was developed. A study was undertaken to simultaneously evaluate four common easily measured parameters used to assess adequacy of resuscitation, i.e., blood pressure, pulse rate, CUP and pulmonary artery pressure. Results indicate that of these, the best single parameter to assess adequacy of volume restoration is pulmonary artery pressure. Measurement of PaO₂ and tissue pO₂ (liver) in animals subjected to hemorrhagic shock demonstrates a significant decrease in tissue pO₂ while PaO₂ remains unchanged. Increasing FI_{O2} and/or PaO₂ is inadequate treatment of decreased tissue oxygenation in marginal or low flow states.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

An Investigation of the Effect of Supplemental Oxygen on
TITLE: Chemically Induced Fat Embolization

WORK UNIT NO: 76/24

PRINCIPAL INVESTIGATOR: CPT MacKay, MD

ASSOCIATE INVESTIGATORS: COL Bagg, MD; CPT Hill, MD

OBJECTIVES

To determine whether or not supplemental oxygen prevents or lessens the potentially lethal effects of chemically induced fat embolization in dogs.

TECHNICAL APPROACH

Clinical observations as well as lung scans are generally accepted as criteria for determination of the presence of fat embolism syndrome. In this study laboratory parameters and lung scans are obtained for a 5-day period in beagles following injection of oleic acid. This data is collected from dogs supported on either room air or supplemental oxygen.

MANPOWER: 0.35 Man yrs

FUNDING: Civ Sal

FY76 \$2357

Equip, Supp

\$2200

OPA

-

Total

\$4560

PROGRESS

To date five of the projected 30 dogs have been studied on room air. We are in the process of continuing with the other study groups. No analysis of data has yet been made. About 30% completed.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Early Detection of Fatigue Fracture by Bone Scanning with
TITLE: Tc99 Bone Scan Agents

WORK UNIT NO: 76/31

PRINCIPAL INVESTIGATOR: CPT Snowdy, M.D.

ASSOCIATE INVESTIGATORS: Nuclear Medicine staff

OBJECTIVES

To demonstrate if bone scans can detect fatigue fractures and/or stress reactions in bone in military personnel, etc.

TECHNICAL APPROACH

Patients with suspected stress fractures of bone are given bone scans on a "stat " or "ASAP" basis - usually the day after seen by Orthopedic physicians.

MANPOWER: 0.05 Man yrs

FUNDING: Civ Sal
FY76 \$ 337

Equip Supp

-

OPA

-

Total

\$ 337

PROGRESS

We have demonstrated successfully that bone scans are indeed positive in stress fractures of bone. In addition, we have demonstrated that bone scans with Tc99 bone scan agents is positive several days before x-ray changes become apparent. We are attempting to determine how soon bone scans are positive in patients with fatigue fractures after the onset of symptoms. Exhibit on results were presented at the Society of Nuclear Medicine National Meeting in June and was awarded the Silver Medal in the Resident category.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Proposal for Joint Study by Orthopedic Service, Dept of
TITLE: Clinics & Radiology

WORK UNIT NO: 76/32

PRINCIPAL INVESTIGATOR: MAJ McKay, MD

ASSOCIATE INVESTIGATORS: MAJ Shubert, MD

OBJECTIVES

To compare the clinical entity of low back pain with the presence of radiographic anomalies of the lumbo-sacral spine.

TECHNICAL APPROACH

Group analysis in a prospective fashion taking into account high risk categories. Personnel undergoing separation physicals (retirement, etc) will be assessed radiographically for the presence of lumbosacral anomalies. This evaluation will be correlated with previous history and consultations for low back pain.

PROGRESS

Background research has been completed and case material is now being collected.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

Abomasal Parasite (Helminth) Counts as an Index for Herd
TITLE: Health and Population of Mule Deer

WORK UNIT NO: 75/18

PRINCIPAL INVESTIGATOR: MAJ M.S. Nix, Jr, VC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To compare the Abomasal parasite count method of determining deer herd size and health status with current methods of pellet and Brouse count used on North McGregor Range.

TECHNICAL APPROACH

Deer will be collected by New Mexico Game and Fish Commission in the months of March and July. November is the normal hunting season; the abomasum can be collected from the hunters' kill.

MANPOWER: 0.05 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$1091	-	-	\$1091
FY76	\$ 337	-	-	\$ 337

PROGRESS

None reported

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Evaluation of Applicability of the Wet Bulb Globe Temperature (WBGT) Index to Armored Vehicle Operators

WORK UNIT NO: 74/48

PRINCIPAL INVESTIGATOR: CPT McNeil, MSC

ASSOCIATE INVESTIGATORS: Dr. R. F. Goldman, PhD

OBJECTIVES

To study the reliability of using the standard WBGT Index in the measurement of heat stress in armored vehicles. To date, no similar study has been reported.

TECHNICAL APPROACH

Collection of ambient WBGT Index temperatures versus like readings inside a variety of armored vehicles will be conducted. Measurements will be taken with the vehicles at rest, in convoy, in firing positions and during range fire. Collection of data regarding internal core and skin temperatures of various armored vehicles personnel and measurement of metabolic rates (work expenditures) will be carried out.

MANPOWER: 0.05 Man yrs

FUDING:	<u>Civ Sal</u>	<u>Equip Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327
FY76	\$337	-	-	\$337

PROGRESS

Terminated due to lack of test material. Units selected for inclusion in this study were unavailable for extensive testing prior to the departure of the principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Evaluation of Selection Criteria for Entry to the 300-91C Program

WORK UNIT NO: 76/35

PRINCIPAL INVESTIGATOR: LTC L. Hauck, ANC

ASSOCIATE INVESTIGATOR: CPT N. Sass, PhD

OBJECTIVES

To determine factors suitable for course entry selection criteria which may be predictive of success or failure of students in the Clinical Specialist Course.

TECHNICAL APPROACH

A retrospective study of available data on students in previous 91C courses is being conducted. Twenty variable factors are being correlated using a Manova computer program against each student's success or failure in the course, in an attempt to determine correlative predictors of success or failure.

MANPOWER: 0.35 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY76	\$2357	-	-	\$2357

PROGRESS

New project.

STATUS: Ongoing

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